



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/664,705

09/19/2000

Shachar Nadler

8389-013

1480

1059

7590

09/21/2004

BERESKIN AND PARR

SCOTIA PLAZA

40 KING STREET WEST-SUITE 4000 BOX 401

TORONTO, ON M5H 3Y2

CANADA

EXAMINER

ROSENBERGER, RICHARD A

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/664,705

Applicant(s)

NADLER, SHACHAR

Examiner

Richard A Rosenberger

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21,24-48,51 and 52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21,24-48,51 and 52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2877

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 45-48 and 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schiff et al. "A Near Infrared Diode Laser System For Remote Measurement of Automobile Exhaust Gas Concentrations and Temperature".

The Schiff et al article was cited on the Information Disclosure Statement filed 1 February 2001, page 2 of 6. Although the document itself appears to have no date thereon, the listing on the Information Disclosure Statement gives a date of October 1993. This application is a continuation of an earlier application, 08/508,505, with a filing date of 28 July 1995. October 1993 is more than a year prior to 28 July 1995, thus the Schiff et al article appears to be prior art under 35 USC 102(b).

The Schiff et al article shows the basic claimed optical system and method; see figure 1 in particular. The system has the diode laser (page 2, line 5) with means to transmit the light through exhaust gases, and a detector to detect the laser beam after transmission through the exhaust gases. There is a two-tone generator, and ramp generator to scan the frequency of the laser rapidly across the absorption range of interest with a frequency in the range

Art Unit: 2877

of 10-100 kHz, (page 2, lines 18-19), and a mixer to combine the two to create a two-tone frequency modulated signal. There is a demodulator means (page 2, line 29), and a mixer receiving the demodulated signal and a signal representing the original frequency (page 3, lines 2-3) to produce a DC signal which is proportional to the detected differences of the demodulated signal and the signal representing the original frequency signal (page 3, lines 3-6). As the signal from the mixer is described as “directly proportional to the concentration of the absorbing gas” (page 3, line 6), it would have been at least obvious to have a processor convert the signal to an actual measurement of concentration.

As shown in figure 2 of the article, the light is directed to, and received from, the gases being measured through a telescope system, and the article refers to the system as being intended to make remote measurements (page iv, line 2; page 1, line 27; page 2, line 5; page 4, caption of figure 2). With such a telescope-based measuring system, with the laser diode in the input portion of the telescope, the laser diode would be located remotely from the gasses being measured.

The article states that the light beam is “directed through the exhaust plume” (page 2, line 27); placing the instrument in a location, such as by a road or a stack, where the exhaust plume of interest is located, would have been at least obvious.

Art Unit: 2877

3. Claims 21 and 24-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schiff et al, "A Near Infrared Diode Laser System For Remote Measurement of Automobile Exhaust Gas Concentrations and Temperature", in view of Partridge et al (US 5,339,155) (previously cited), Wallin et al (US 5,255,073), and Tai et al , "Long-Distance Simultaneous Detection of Methane and Acetylene by Using Diode Lasers Coupled with Optical Fibers" (cites on the Information Disclosure Statement filed 1 February 2001, page 1 of 6), and Boise et al (US 4,820,045) (previously cited).

See above for a discussion of the Schiff et al article.

The Schiff et al article does not teach optical fiber connection means to connect the laser to the telescope and the telescope to the detection means. The use of such fibers is known in the art. Figure 5 of the Partridge et al patent, for example, shows an optical fiber (34) to connect a light source (4) and a detector (12) to a telescope and retroreflector optical system for monitoring gasses. Wallin et al shows an optical fiber (19) to receive light in a telescope system for monitoring gasses. The Tai et al article shows using fibers to connect a plurality of light sources such as lasers to a measuring region and to connect the measuring region to a detector (see figure 2); although the Tai et al reference discloses the specifics of a laboratory demonstration, the article clearly refers to "remote detection of ... gases spilled into the air" (page 804, lines 1-2 or the body of the article" and clearly teaches and suggests, and clearly intends to teach and to suggest, the use of

Art Unit: 2877

such fibers in systems used in the field. Boide et al also shows the use of fibers to connect the light source and detectors to measuring regions. As shown by the four latter references, those in the art are aware that light sources and detectors can be used, and it can be usefully be used, to connect light sources and detectors to the optics of gas measuring instruments, including telescope based systems such as shown by the Schiff et al article. Thus it would have been obvious to use fibers to so connect the light source and detector because, as shown by the references , it is known to do so and is known to be useful to do so. As shown by Boide et al, it is known to use such fibers, and appropriate optical switches, to use a single light source and detector arrangement to sequentially measure a plurality of samples to save the expense of multiple light source detector arrangements (Boide et al, column 2, line 58 through column 3, line 5).

4. The Cited Carlisle article ("Quantum noise-limited FM spectroscopy with a lead-salt diode laser", Applied Optics, Vol. 23, No. 13, 1 July 1989) shows a similar two-tone scanned optical detection system for gases. The Carlisle reference does not teach or suggest the claimed mixer for receiving the demodulated signal and a signal representing the original frequency to produce a DC output signal proportional to the detected differences between the demodulated signal and the original frequency signal.

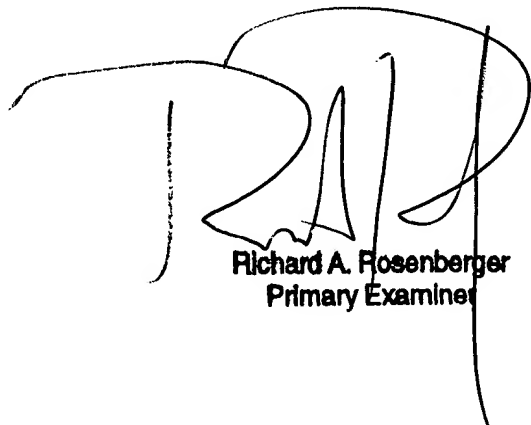
Art Unit: 2877

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberg whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberg
13 September 2004



Richard A. Rosenberg
Primary Examiner